

Equipment List

Engineering (as needed, not required for engineering programs)

Fine Tools (as needed for projects)

Dremel tools
Exacto-knives and blades
Hex key wrenches
Layout Bluing fluid
Magnifying glass
Masses (set) or weights (one set per every 4 or 5 students)
Multimeter (volts, amps, ohms)
Photo gates (assortment)
Protractors
Soldering iron, solder
Spring scales (from .5 NT up to 50 NT)
Stopwatch
Soldering iron, solder
Weigh scale

Safety Equipment (Required)

First Aid Station or Kit
Flammable Liquid Storage Cabinet
Hearing Protection
Protective Clothing (coveralls, aprons, sleeves, etc. as needed)
Respiratory Protection
Safety Cabinet (OSHA and EPA compliant)
Safety & Environmental Labels (Fire/Explosives Diamonds)
Safety Glasses, Goggles, and Face Shields
Variety of Material Data Safety Sheets (MSDS)
Work Gloves (latex, rubber, leather)

Test and Measurement for Engineering (Optional)

Dividers
Engineer scale
Coordinate Measuring Machine (CMM)
Microscope
Oscilloscope
Spectrophotometer
Stress Analyzer
Tensile/Compression Tester
Ultrasonic Tester

Equipment List

Measuring Instruments:

Tape measures

Calipers; digital or dial

Combination set Micrometers: Depth, Height, Inside, Outside 0-3 Micrometers (to .001")

Dial indicator (to .001" min resolution)

6" rule

Gages:

→ Go/no-go gage for threads

→ Layout height gage

→ Marking gauges

→ Surface finish,

→ Comparison gages

→ Telescopic gages to .750

Squares

→ Master Square or magnetic square

→ Solid square

Equipment for Drafting/Blue Print reading (optional)

Computer Equipment

Computers; PC/ MAC with sufficient memory and removable storage for drafting and virtual learning programs, and peripherals (minimum of 1 computer per 2 students)

Color monitor

DVD CDRW

3-D printer

Printer/ plotter

Rapid prototyping machine

Computer & Software Resources (optional)

Automated MFG/Manufacturing Execution Systems (MES) software and manuals

Computer Aided Design and Drafting (CADD) software/ SolidWorks/solid edge

Computer - Numerically Controlled (CNC) software.

DAQ card

Data collection and analysis software (MS Excel, Minitab, LabVIEW)

Dimensional Calculations and Conversions software with manuals

ERP/MRP software and manuals

Equipment List

General Productivity Software, General Utility Software and Internet Browsers

Matlab from Mathworks (suggested)

Project Management software, with manuals

PowerPoint/Word)

Robotics and Materials Handling Software and manuals

Rapid Prototyping software and manuals

Surge Suppressers

Word processing software, with manuals (MS Office Pro XP Including Access/Excel)

Equipment for Other Options

Programmable Logic Controller (PLC)

Robotic Arm on Slide Base

SPC Miniprocessor

Hand Tools: (as needed for projects)

Bench vise

C-clamps, parallel-closing clamps,

Calipers, interior, exterior, digital

Clamps

Diagonal Cutter

Drills, portable power High Speed Drill bit Set

Edge finder, appropriate tools for determining squareness

Files and Rasps; Flat, Round and Half Round with handles

Layout ink or a Magic Marker,

Levels

Hammers

→ Ball peen

→ Soft-faced hammers

Needle nose pliers

Nut Driver Set

Pliers (slip-joint, long nose, diagonal, etc.)

Punches

Sanders

Saw

→ Band Vertical (blades)

→ Hacksaw with blades

→ Handsaws - wood-metal cutting

Equipment List

Hand Tools (cont'd)

Screwdrivers

- Flat head
- Phillips
- Jewelers

Shop Vacuum

Side cutters

Snips

Socket Set 3/8 drive set

Squares, (e.g., tri, flat steel and combination)

Tap wrenches, tap and die set, standard/metric

Waste can for contaminated rags

Wrenches, combination, standard and metric sets, Hex Key

Consumables:

Abrasives; sand paper

Adhesives

Assortment of fasteners

Tensile test samples (aluminum, brass, and steel)

Common Workbench

- Layout surface plate at least 12" X 18"

Drill Press

- With a 6" drill vise or greater
- Screws, studs, nuts, washers, and clamps sufficient to secure the vise, or the part.

Surface Grinders

Grinding Wheel Dresser